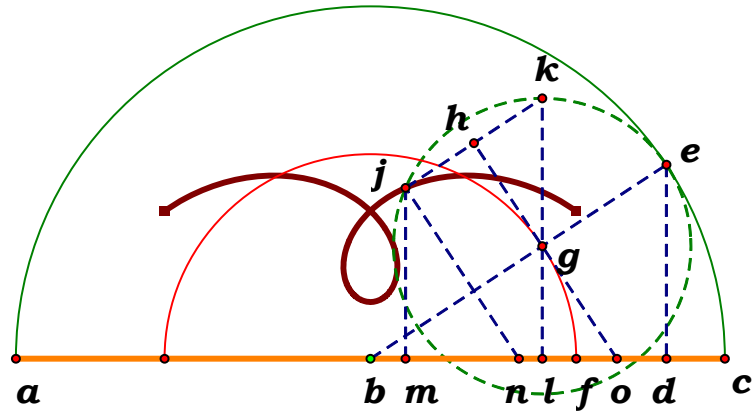
Umbrella, Bird or Rabbit P1



$ad = 1.83489$

$af = 1.58056$

$am = 1.09921$

$jm = 0.48484$

Given:

$ab := 1 \quad ad := 1.83489 \quad af := 1.58056$

af ranges between ab and ac

Descriptions:

$ac := 2\cdot ab \quad cd := ac - ad \quad de := \sqrt{ad\cdot cd}$

$cf := ac - af \quad eg := cf \quad bc := ab \quad bf := af - ab$

$bd := ad - ab \quad bl := \frac{bd\cdot bf}{bc} \quad gl := \frac{de\cdot bf}{bc} \quad lo := \frac{gl^2}{bl}$

$bg := bc - eg \quad go := \frac{de\cdot bg}{bd} \quad gp := \frac{lo\cdot eg}{go} \quad ep := eg + gp$

$bp := bc - ep \quad np := \frac{de\cdot bp}{bd} \quad jp := \frac{gl\cdot gp}{lo} \quad jn := np + jp$

$jm := \frac{bd\cdot jn}{bc} \quad nm := \frac{de\cdot jm}{bd} \quad bn := \frac{bc\cdot np}{de} \quad bm := bn - nm$

$am := ab + bm \quad am = 1.09921 \quad jm = 0.48484$

Definitions:

$ac - 2 = 0 \quad cd - (2 - ad) = 0 \quad de - \sqrt{2\cdot ad - ad^2} = 0 \quad cf - (2 - af) = 0 \quad eg - (2 - af) = 0$

$bc - 1 = 0 \quad bf - (af - 1) = 0 \quad bd - (ad - 1) = 0 \quad bl - (ad - 1)\cdot(af - 1) = 0$

$gl - \sqrt{2\cdot ad - ad^2}\cdot(af - 1) = 0 \quad lo - \frac{ad\cdot(2 - ad)\cdot(af - 1)}{ad - 1} = 0$

$bg - (af - 1) = 0 \quad go - \frac{\sqrt{2\cdot ad - ad^2}\cdot(af - 1)}{ad - 1} = 0 \quad gp - \frac{ad\cdot(2 - ad)\cdot(2 - af)}{\sqrt{2\cdot ad - ad^2}} = 0$

$ep - \frac{(af - 2)\cdot\left(ad^2 - 2\cdot ad - \sqrt{2\cdot ad - ad^2}\right)}{\sqrt{2\cdot ad - ad^2}} = 0 \quad bp - \frac{(af - 1)\cdot\sqrt{2\cdot ad - ad^2} + ad\cdot(2 - af)\cdot(ad - 2)}{\sqrt{2\cdot ad - ad^2}} = 0$

$np - \frac{(af - 1)\cdot\sqrt{2\cdot ad - ad^2} + ad\cdot(2 - af)\cdot(ad - 2)}{ad - 1} = 0 \quad jp - (ad - 1)\cdot(2 - af) = 0$

Definitions continued:

$$jn - \frac{(af-1)\cdot\sqrt{2\cdot ad - ad^2} + \left(2\cdot ad^2 - 4\cdot ad + 1\right)\cdot(2-af)}{ad-1} = 0$$

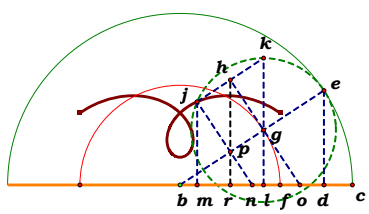
$$jm - \left[(af-1)\cdot\sqrt{2\cdot ad - ad^2} + \left(2\cdot ad^2 - 4\cdot ad + 1\right)\cdot(2-af)\right] = 0$$

$$nm - \frac{\sqrt{2\cdot ad - ad^2}\cdot\left[(af-1)\cdot\sqrt{2\cdot ad - ad^2} + \left(2\cdot ad^2 - 4\cdot ad + 1\right)\cdot(2-af)\right]}{ad-1} = 0$$

$$bn - \frac{(af-1)\cdot\sqrt{2\cdot ad - ad^2} + ad\cdot(af-2)\cdot(2-ad)}{\sqrt{2\cdot ad - ad^2}\cdot(ad-1)} = 0$$

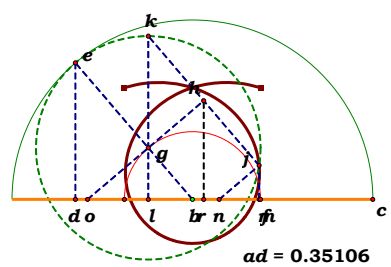
$$bm - \frac{(ad-1)^2\cdot\left[(af-1)\cdot\sqrt{2\cdot ad - ad^2} + 2\cdot ad\cdot(af-2)\cdot(2-ad)\right]}{\sqrt{2\cdot ad - ad^2}\cdot(ad-1)} = 0$$

$$am - \left[[2\cdot(af-2)\cdot(ad-1)]\cdot\sqrt{2\cdot ad - ad^2} + (ad\cdot af - af - ad + 2)\right] = 0$$



$ad = 1.83489$
$af = 1.58056$
$am = 1.09921$
$jm = 0.48484$

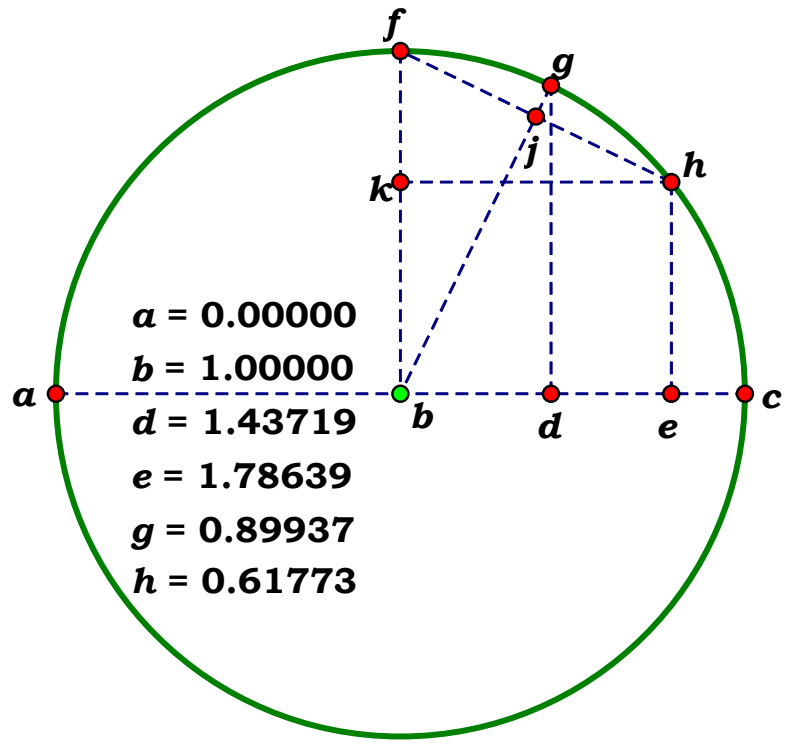
$ac = 2.00000$ $\quad ac - 2 = 0.00000$
$af = 1.58056$
$ad = 1.83489$ $\quad de - \sqrt{2\cdot ad - ad^2} = 0.00000$
$de = 0.55042$
$gl = 0.31955$ $\quad gl - \sqrt{2\cdot ad - ad^2}\cdot(af - 1) = 0.00000$
$jm = 0.48484$
$jm - \left((af - 1)\cdot\sqrt{2\cdot ad - ad^2} + (2\cdot ad^2 - 4\cdot ad + 1)\cdot(2 - af)\right) = 0.00000$
$am = 1.09921$
$am - \left((2\cdot(af - 2)\cdot(ad - 1))\cdot\sqrt{2\cdot ad - ad^2} + (ad\cdot af - af - ad + 2)\right) = 0.00000$



$ad = 0.35106$
$af = 1.37745$
$am = 1.36981$
$jm = 0.18897$

$ac = 2.00000$ $\quad ac - 2 = 0.00000$
$af = 1.37745$
$ad = 0.35106$ $\quad de - \sqrt{2\cdot ad - ad^2} = 0.00000$
$de = 0.76084$
$gl = 0.28718$ $\quad gl - \sqrt{2\cdot ad - ad^2}\cdot(af - 1) = 0.00000$
$jm = 0.18897$
$jm - \left((af - 1)\cdot\sqrt{2\cdot ad - ad^2} + (2\cdot ad^2 - 4\cdot ad + 1)\cdot(2 - af)\right) = 0.00000$
$am = 1.36981$
$am - \left((2\cdot(af - 2)\cdot(ad - 1))\cdot\sqrt{2\cdot ad - ad^2} + (ad\cdot af - af - ad + 2)\right) = 0.00000$

Umbrella, Bird or Rabbit P2



Given:

$ab := 1 \quad ad := 1.82037$

Descriptions:

$ac := 2 \cdot ab \quad bc := ab \quad bg := ab$

$cd := ac - ad \quad dg := \sqrt{ad \cdot cd}$

$bd := ad - ab \quad fh := 2 \cdot bd \quad hk := \frac{dg \cdot fh}{bc}$

$be := hk \quad ae := ab + be \quad ce := bc - be$

$fk := bd \cdot fh$

$eh := \sqrt{ae \cdot ce} \cdot \frac{ab - fk}{\sqrt{(ab - fk)^2}}$

The Circle is drawn by the equations ae and eh.

Definitions:

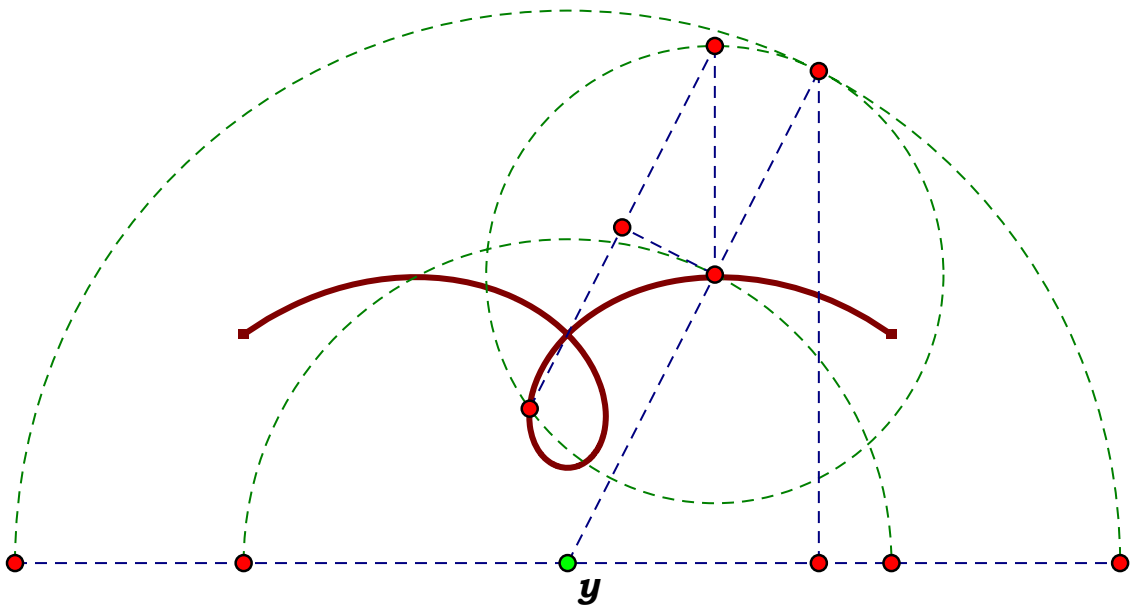
$ac - 2 = 0 \quad bc - 1 = 0 \quad bg - 1 = 0 \quad cd - (2 - ad) = 0$

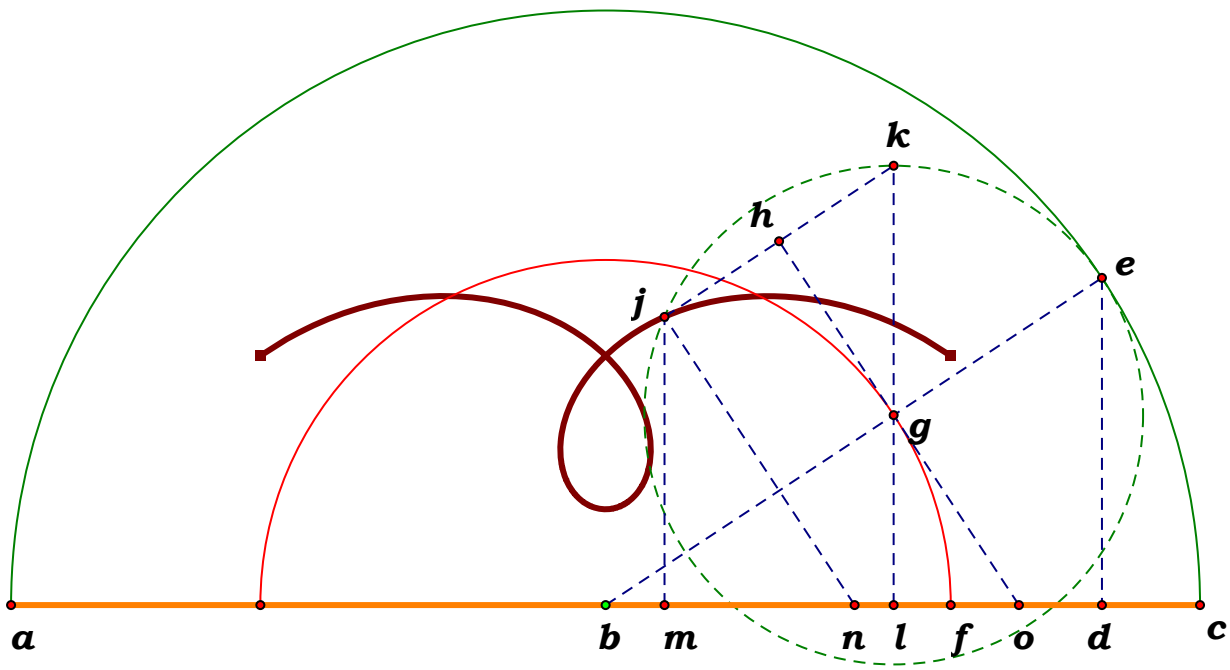
$dg - \sqrt{2 \cdot ad - ad^2} = 0 \quad bd - (ad - 1) = 0 \quad fh - 2 \cdot (ad - 1) = 0$

$hk - 2 \cdot \sqrt{2 \cdot ad - ad^2} \cdot (ad - 1) = 0 \quad be - 2 \cdot \sqrt{2 \cdot ad - ad^2} \cdot (ad - 1) = 0$

$ae - \left[1 + 2 \cdot \sqrt{2 \cdot ad - ad^2} \cdot (ad - 1)\right] = 0 \quad ce - \left[(2 - 2 \cdot ad) \cdot \sqrt{2 \cdot ad - ad^2} + 1\right] = 0$

$eh - \left(4 \cdot ad - 2 \cdot ad^2 - 1\right) = 0$


y

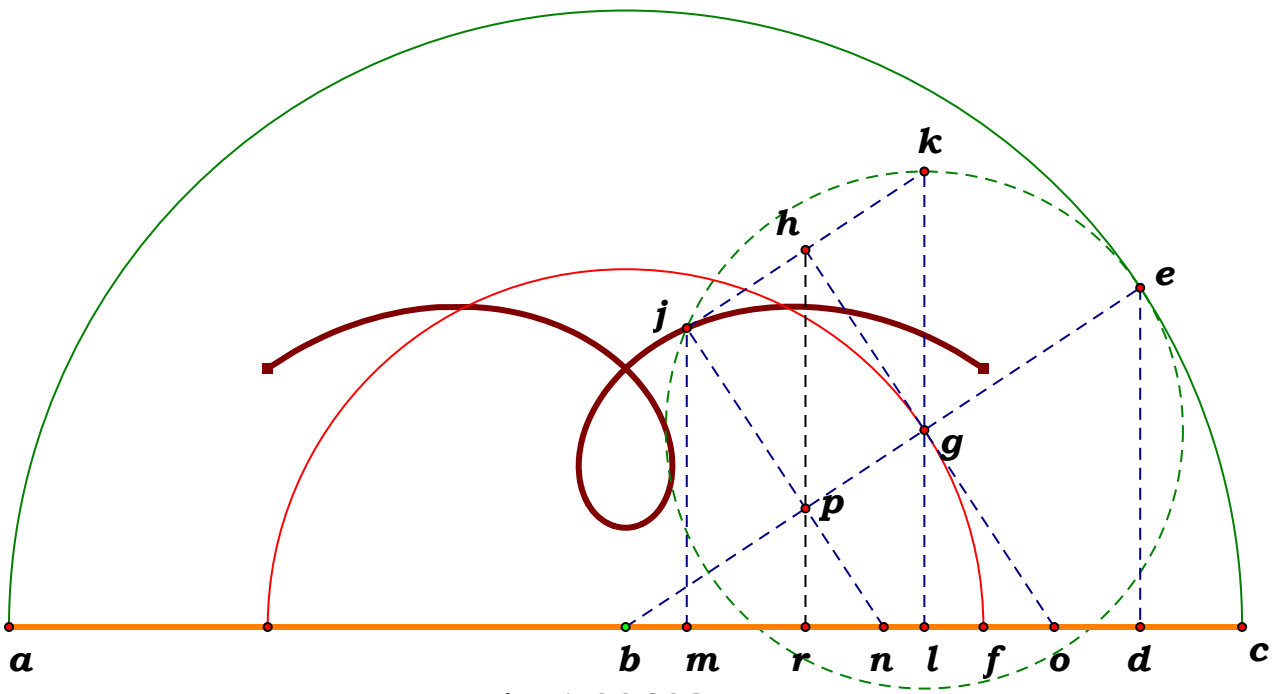


ad **= 1.83489**

af **= 1.58056**

am **= 1.09921**

jm **= 0.48484**



$ad = 1.83489$

$af = 1.58056$

$am = 1.09921$

$jm = 0.48484$

$ac = 2.00000$ $\quad ac - 2 = 0.00000$

$af = 1.58056$

$ad = 1.83489$ $\quad de - \sqrt{2 \cdot ad - ad^2} = 0.00000$

$de = 0.55042$

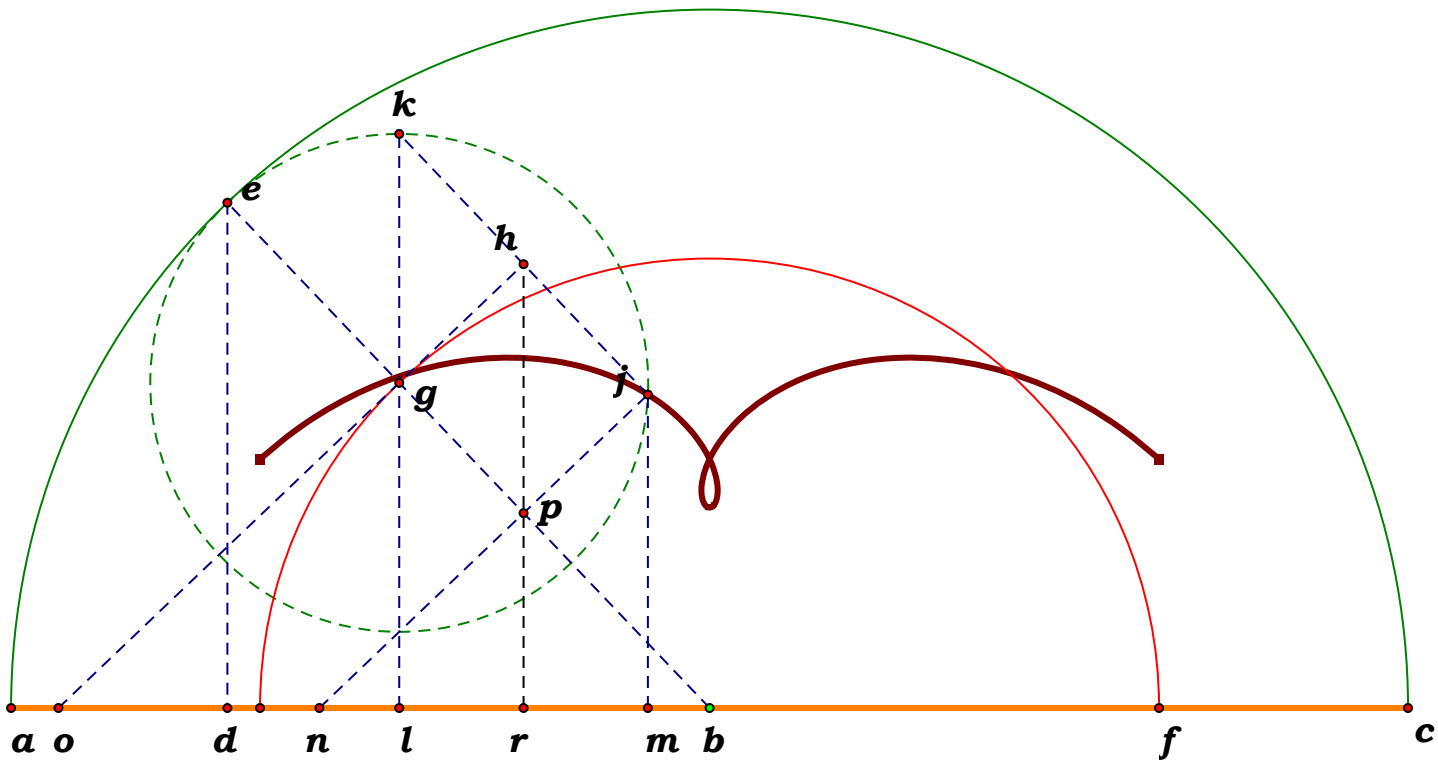
$gl = 0.31955$ $\quad gl - \sqrt{2 \cdot ad - ad^2} \cdot (af - 1) = 0.00000$

$jm = 0.48484$

$jm - \left((af - 1) \cdot \sqrt{2 \cdot ad - ad^2} + \left(2 \cdot ad^2 - 4 \cdot ad + 1\right) \cdot (2 - af)\right) = 0.00000$

$am = 1.09921$

$am - \left((2 \cdot (af - 2) \cdot (ad - 1)) \cdot \sqrt{2 \cdot ad - ad^2} + (ad \cdot af - af - ad + 2)\right) = 0.00000$



$ad = 0.30960$

$af = 1.64356$

$am = 0.91174$

$jm = 0.44892$

$ac = 2.00000$ $\quad ac - 2 = 0.00000$

$af = 1.64356$

$ad = 0.30960$ $\quad de - \sqrt{2 \cdot ad - ad^2} = 0.00000$

$de = 0.72343$

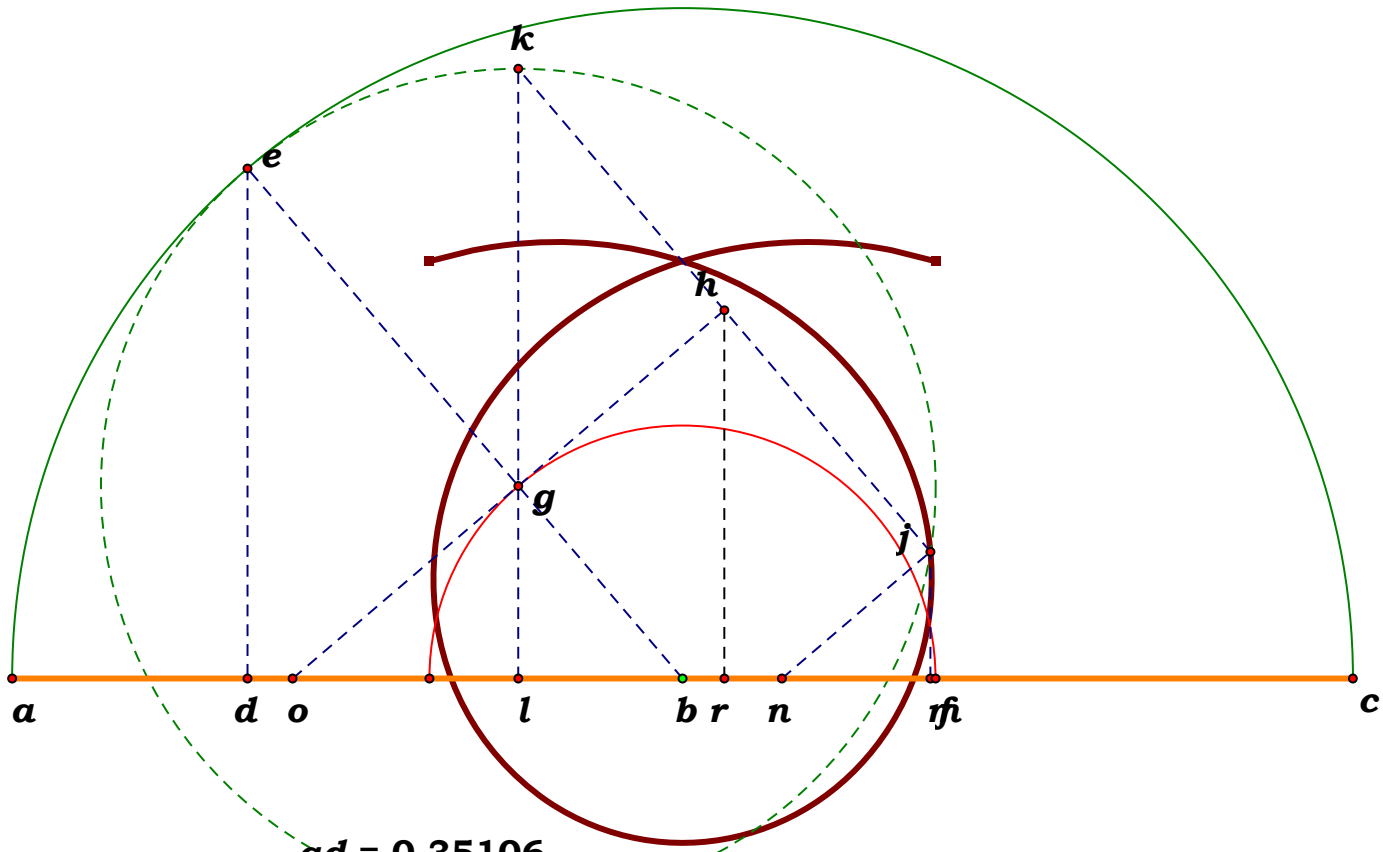
$gl = 0.46557$ $\quad gl - \sqrt{2 \cdot ad - ad^2} \cdot (af - 1) = 0.00000$

$jm = 0.44892$

$jm - \left((af - 1) \cdot \sqrt{2 \cdot ad - ad^2} + \left(2 \cdot ad^2 - 4 \cdot ad + 1\right) \cdot (2 - af)\right) = 0.00000$

$am = 0.91174$

$am - \left((2 \cdot (af - 2) \cdot (ad - 1)) \cdot \sqrt{2 \cdot ad - ad^2} + (ad \cdot af - af - ad + 2)\right) = 0.00000$



$ad = 0.35106$

$af = 1.37745$

$am = 1.36981$

$jm = 0.18897$

$ac = 2.00000$ $\quad ac - 2 = 0.00000$

$af = 1.37745$

$ad = 0.35106$ $\quad de - \sqrt{2 \cdot ad - ad^2} = 0.00000$

$de = 0.76084$

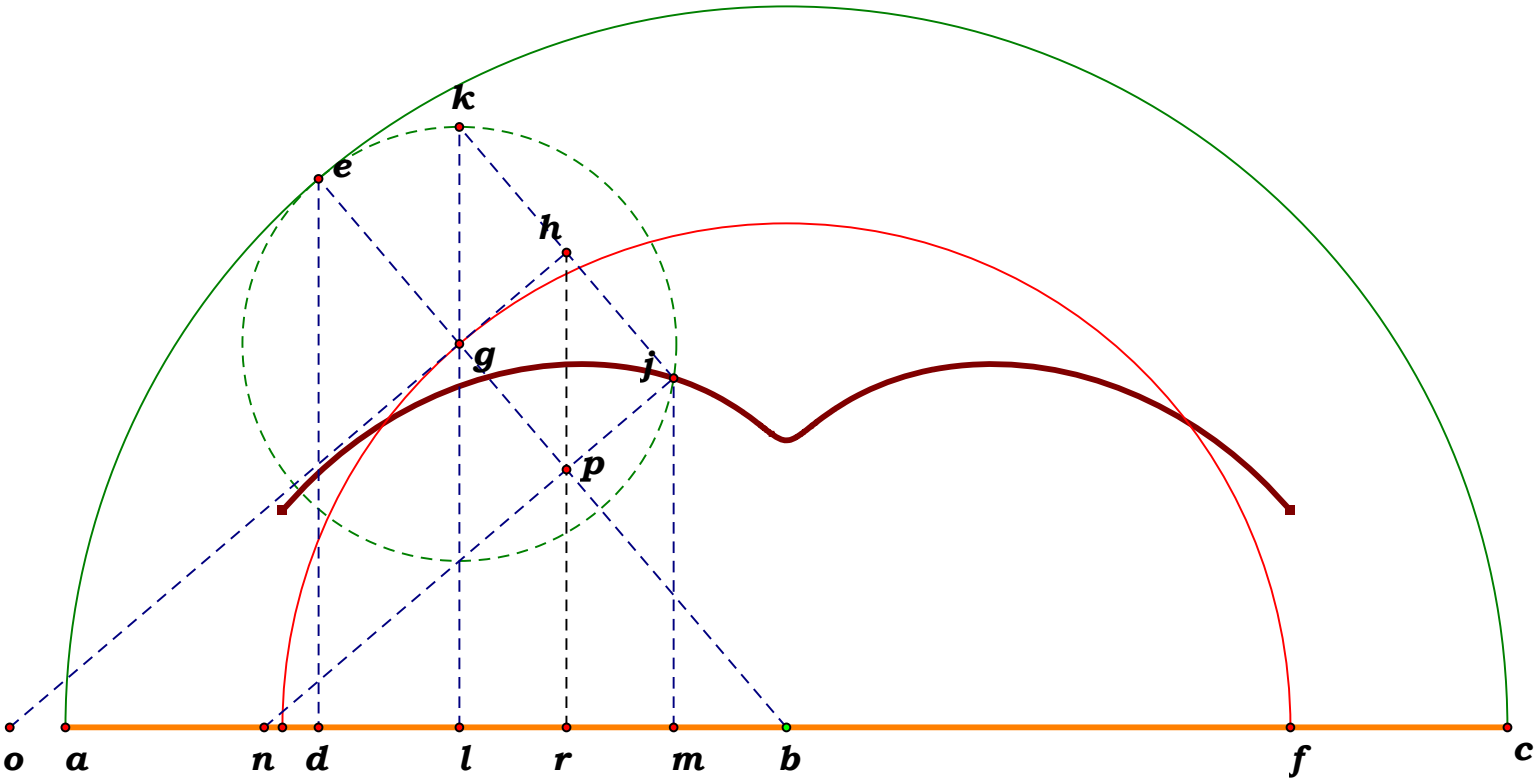
$gl = 0.28718$ $\quad gl - \sqrt{2 \cdot ad - ad^2} \cdot (af - 1) = 0.00000$

$jm = 0.18897$

$jm - \left((af - 1) \cdot \sqrt{2 \cdot ad - ad^2} + (2 \cdot ad^2 - 4 \cdot ad + 1) \cdot (2 - af)\right) = 0.00000$

$am = 1.36981$

$am - \left((2 \cdot (af - 2) \cdot (ad - 1)) \cdot \sqrt{2 \cdot ad - ad^2} + (ad \cdot af - af - ad + 2)\right) = 0.00000$



$ad = 0.35106$

$af = 1.69904$

$am = 0.84355$

$jm = 0.48438$

$ac = 2.00000$ $\quad ac - 2 = 0.00000$

$af = 1.69904$

$ad = 0.35106$ $\quad de - \sqrt{2 \cdot ad - ad^2} = 0.00000$

$de = 0.76084$

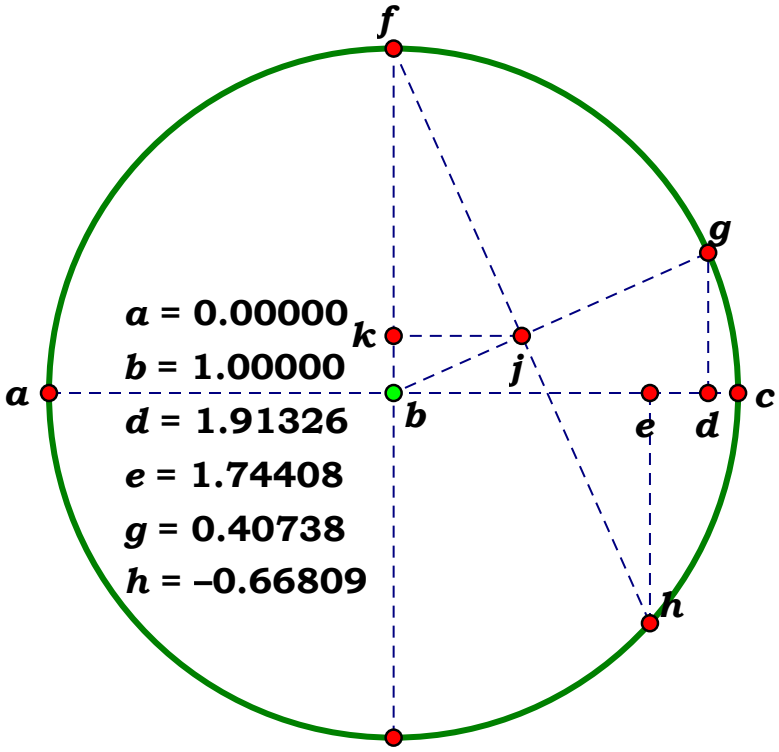
$gl = 0.53186$ $\quad gl - \sqrt{2 \cdot ad - ad^2} \cdot (af - 1) = 0.00000$

$jm = 0.48438$

$jm - \left((af - 1) \cdot \sqrt{2 \cdot ad - ad^2} + (2 \cdot ad^2 - 4 \cdot ad + 1) \cdot (2 - af)\right) = 0.00000$

$am = 0.84355$

$am - \left((2 \cdot (af - 2) \cdot (ad - 1)) \cdot \sqrt{2 \cdot ad - ad^2} + (ad \cdot af - af - ad + 2)\right) = 0.00000$



$$4\cdot d - 2\cdot d^2 - 1 = -0.66809$$

$$h - \left(4\cdot d - 2\cdot d^2 - 1\right) = 0.00000$$

$$1 + 2\cdot\sqrt{2\cdot d - d^2}\cdot(d - 1) = 1.74408$$

$$e - \left(1 + 2\cdot\sqrt{2\cdot d - d^2}\cdot(d - 1)\right) = 0.00000$$

$d = 0.59044$

$A = 1.18088$

$A - (2 \cdot d) = 0.00000$

$B = 0.34862$

$B - d^2 = 0.00000$

$C = 0.83226$

$C - (A - B) = 0.00000$

$D = 0.91228$

$D - \sqrt{A - B} = 0.00000$

$E = -0.40956$

$E - (d - 1) = 0.00000$

$F = -0.37363$

$F - D \cdot E = 0.00000$

$e = 0.25273$

$1 + 2 \cdot \sqrt{2 \cdot d - d^2} \cdot (d - 1) = 0.25273$

$G = 2.36176$

$G - 4 \cdot d = 0.00000$

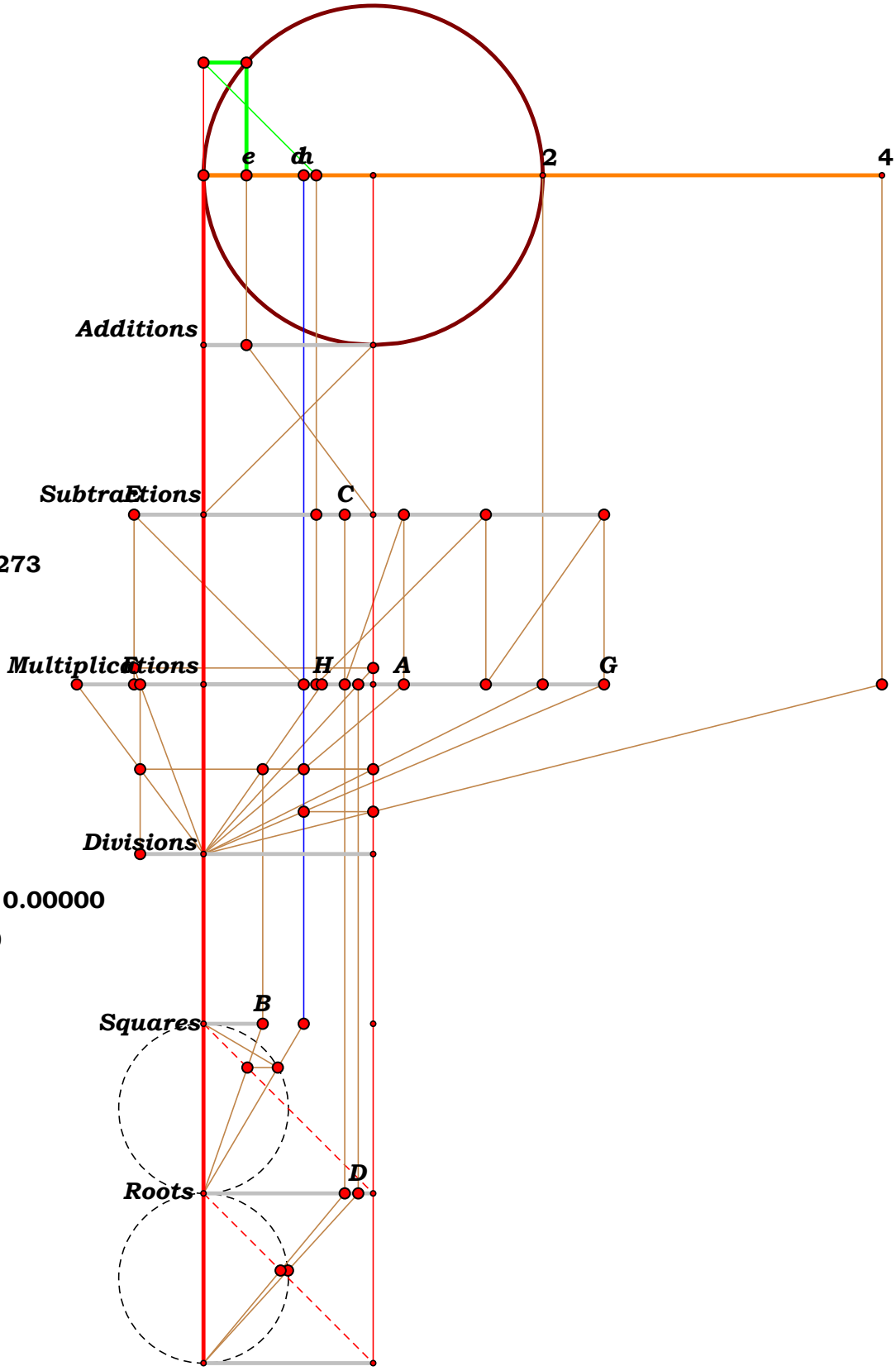
$H = 0.69724$

$H - 2 \cdot B = 0.00000$

$h = 0.66452$

$4 \cdot d - 2 \cdot d^2 - 1 = 0.66452$

Animate Point

$e - \left(1 + 2 \cdot \sqrt{2 \cdot d - d^2} \cdot (d - 1)\right) = 0.00000$

$h - \left(4 \cdot d - 2 \cdot d^2 - 1\right) = 0.00000$